



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/691,515

10/24/2003

David James Wilson

ALC3447

7405

76614

7590

12/16/2008

Kramer & Amado, P.C.

1725 Duke Street

Suite 240

Alexandria, VA 22314

EXAMINER

SWEARINGEN, JEFFREY R

ART UNIT

PAPER NUMBER

2445

MAIL DATE

DELIVERY MODE

12/16/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/691,515	<b>Applicant(s)</b> WILSON, DAVID JAMES	
	<b>Examiner</b> Jeffrey R. Swearingen	<b>Art Unit</b> 2445	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) 1-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 36-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

Art Unit: 2445

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/25/2008 has been entered.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1-46 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 36-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beier et al. (US 7,269,663) in view of Sorinsuo et al. (US 6,084,855).

5. In regard to claims 36 and 46, Beier disclosed a flow based cache system. Beier, column 3, lines 5-13. Beier used a cache key to perform a cache lookup. Beier, column 3, lines 5-13. The key is generated based on the packet header. Beier, column 5, lines 1-4. If the cache does not get a hit (part (c)) then the information is stored in the cache. Beier, column 5, lines 24-44. If the cache does get a hit (part (d)) then the information is retrieved from the cache. Beier, column 9, lines 13-20. The functions of checking a cache for a hit or a miss of information are well known to one of ordinary skill in the art. Beier fails to disclose that these functions are performed on the extension headers of an IPv6 packet. Beier does use IP packets. Beier, column 5, line 7. Sorinsuo disclosed caching IPv6 flows. Sorinsuo, column 7, line 61 – column 8, line 14. The IPv6 extension headers are disclosed in Sorinsuo, Figure 4. It would

Art Unit: 2445

have been obvious to one of ordinary skill in the art at the time of invention to use the extension headers of an IPv6 packet to cache in the Beier invention. One of ordinary skill in the art is well aware of the address shortage based upon the IP address limits of IPv4, and the use of IPv6 to overcome those addressing shortages because of the rapidly expanding number of computers on the Internet. Without using IPv6 with Beier, Beier would be unable to function in a network that had transformed to IPv6 only without a lengthy translation routine to modify the addresses on packets which would cause a substantial amount of overhead and delay.

6. In regard to claim 37, Sorinsuo disclosed the packet is an IPv6 packet. Sorinsuo, column 7, line 61 – column 8, line 14.

7. In regard to claim 38, Beier disclosed the cache key is built from two fields of the Internet header of the packet. Beier, column 9, lines 33-42

8. In regard to claim 39, Beier disclosed the two fields used to build the cache key are an IP source address field and a flow label field for packets that have a flow label, and an IP source field and a destination address field for packets that do not have a flow field. Beier, column 9, lines 28-42 A flow cache entry must have a flow label field in order for the flow to be accessed.

9. In regard to claim 40, Beier disclosed the cache key is built from a source address, a flow label and a next header, or from source and destination addresses and a next header. Beier, column 9, lines 28-42 A flow cache entry must have a flow label field in order for the flow to be accessed.

10. In regard to claim 41, Sorinsuo disclosed the cache lookup is performed using a table containing lengths of extension headers. Sorinsuo, column 7, line 60 – column 8, line 14. Lookups in an IPv6 environment with varying header lengths must be performed using a table containing lengths of extension headers.

11. In regard to claim 42, Beier in view of Sorinsuo disclosed extension headers include a first extension header and additional extension headers, and where said first extension header is read while said cache lookup is being performed on said additional extension headers. Sorinsuo disclosed the use of IPv6 in packet caching. IPv6 has extension headers. Beier disclosed that if a cache had a miss, then that information was added to the cache. Using Sorinsuo with Beier would mean that if an extension

Art Unit: 2445

header was not present in the cache but the cache key matched, then there was a cache miss and the information must be added to the cache. Beier, column 5, lines 24-44.

12. In regard to claim 43, Beier in view of Sorinsuo disclosed if a subsequent packet has a same cache key but additional extension headers, serially traversing said additional extension headers and updating said extension header data by storing additional extension header data. Sorinsuo disclosed the use of IPv6 in packet caching. IPv6 has extension headers. Beier disclosed that if a cache had a miss, then that information was added to the cache. Using Sorinsuo with Beier would mean that if an extension header was not present in the cache but the cache key matched, then there was a cache miss and the information must be added to the cache. Beier, column 5, lines 24-44.

13. In regard to claim 44, Sorinsuo disclosed detecting whether a packet includes hop-by-hop and routing extension headers and omitting steps (c) and (d) if said hop-by-hop and routing extension headers are detected. Sorinsuo, column 7, lines 47-60

14. In regard to claim 45, Beier in view of Sorinsuo disclosed if a subsequent packet has a same cache key as a packet for which extension header data is stored in said cache but the extension header data does not match extension headers in the subsequent packet, skipping step (d) and instead performing a serial traversal of said extension headers in the subsequent packet. Sorinsuo disclosed the use of IPv6 in packet caching. IPv6 has extension headers. Beier disclosed that if a cache had a miss, then that information was added to the cache. Using Sorinsuo with Beier would mean that if an extension header was not present in the cache but the cache key matched, then there was a cache miss and the information must be added to the cache. Beier, column 5, lines 24-44.

***Claim Rejections - 35 USC § 112***

15. Claim 46 is rejected under 35 U.S.C. 112, first paragraph, because it is a single means claim. Based on a reading of the specification and drawings, and looking to the claims, it is apparent that the means for reading the header information, the means for using the cache key, the means for performing a serial traversal, and the means for loading the extension headers in parallel are all the same software algorithm. There is no corresponding structure in the specification to support these as separate means.

Art Unit: 2445

The specification provides evidence that all three means are the algorithm summarized in Figure 2 of the originally filed specification. The *Donaldson* analysis was used to invoke 35 U.S.C. 112, sixth paragraph.

***Conclusion***

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

17. Morishige et al. US 7,162,529

18. Bremler-Barr, Anat et al. "Routing with a Clue." Proceedings of the conference on Applications, technologies, architectures, and protocols for computer communication. August 1999. ACM press. 203-214.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey R. Swearingen whose telephone number is (571)272-3921. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Donaghue can be reached on 571-272-3933. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jeffrey R. Swearingen  
Examiner  
Art Unit 2445

/J. R. S./  
Examiner, Art Unit 2445